



Research Strategic Themes 2010 – 2011 Biennium



Strategic Theme	Issues to address/project ideas to develop	Bureau
Safety	How effective is MDOT's investment in safety programming and crash reduction? Conduct before-and-after studies, looking at all previous studies.	Larry Tibbits COO
	What is the behavioral component of crashes, and how can education money be directed to minimize these crashes? What will be most cost effective?	Leon Hank CAO
	How can MDOT improve safety techniques, materials and equipment? The department should look into current practices and ways to improve.	Randel Van Portfliet Superior Region
	How can the federal-state partnership for state safety system oversight of rail transit be improved?	Sharon Edgar Passenger Transportation
	How do Intelligent Transportation Systems and Vehicle Infrastructure Integration (VII) tie together? Can cars be designed that "can't crash?" (<i>Identified as a long-term need.</i>)	John Friend Highway Delivery

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Mobility	How can technology alleviate congestion? One technology to consider is VII. (<i>Identified as both a short-term and long-term need.</i>)	Susan Mortel Planning
	What are the demographic impacts of an aging Michigan population on the transportation system? The lack of travel options affects the quality of life for the elderly.	John Friend Highway Delivery
	How will MDOT provide traveler information? What information does the public want, and how will it be used?	John Friend Highway Delivery
	How can MDOT improve incident management? This issue should be addressed in light of upcoming legislation on quick clearance.	John Friend Highway Delivery
	What is the performance and effectiveness of roundabouts that are currently in place?	Larry Tibbits COO
	How can MDOT use technology to improve transportation planning? Develop and test new data collection methods, such as remote sensing and VII.	Susan Mortel Planning
	How can the Road Weather Information System be improved? Where can MDOT fix and improve its operations using existing data and project information?	Randel Van Portfliet Superior Region
	What new solutions will mitigate congestion? Possibilities include managed lanes, high-occupancy vehicle lanes, high-occupancy tolling, and others. The department should look at how to apply these solutions to major corridors in urban areas of Michigan.	John Friend Highway Delivery
	What next-generation models of travel demands can MDOT use in the future?	Susan Mortel Planning
	How effective is the park and ride program? Issues to consider include demand, location, integration with transit (including intercity), and future direction of the program (future growth, new locations).	Larry Tibbits COO
	As part of the performance measurement for the entire transportation system, what is the appropriate role and what are the best practices for MDOT in measuring and defining performance of local transit systems?	Sharon Edgar Passenger Transportation
	What is MDOT's role in serving as a comprehensive source of transportation information to users (including local and private transit)? What is MDOT's role in mobility management?	Sharon Edgar Passenger Transportation
	How can very light jets reduce road usage? (<i>Identified as a long-term need.</i>)	Leon Hank CAO
	For intercity regional public transportation (air versus rail), what is MDOT's role in developing and supporting the modes? (<i>Identified as a long-term need.</i>)	Sharon Edgar Passenger Transportation

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Organizational Effectiveness	What are the national best practices on structuring and funding regional transportation systems?	Sharon Edgar Passenger Transportation
	What are the best public/private partnerships for construction, interconnections on modes, and maintenance?	Randel Van Portfliet Superior Region
	How can MDOT coordinate delivery of services to the aging? This includes program development and delivery at the state and local levels and coordination with health services. This issue is closely connected to “mobility management.”	John Friend Highway Delivery Sharon Edgar Passenger Transportation
	How can MDOT’s performance be measured? Methodologies may be developed on a variety of topics.	Susan Mortel Planning
	What peer exchanges (either sponsored at MDOT or attended by MDOT) can MDOT use to learn best practices and then incorporate these practices?	Susan Mortel Planning
	What is the cost/benefit of participating in a federal opt out program?	Myron Frierson Finance & Administration
	What is the fiscal impact of federal regulations for labor and contracting on transportation projects?	Myron Frierson Finance & Administration
	What best practices do DOTs use to leverage federal aid?	Myron Frierson Finance & Administration
	What is the impact of leadership development programs in improving organizational effectiveness?	Myron Frierson Finance & Administration
	How do DOTs ensure that they use qualified and fiscally solvent contractors?	Myron Frierson Finance & Administration
	What are the dynamics in the commercial air service industry (such as passenger and fuel issues)? How can the focus shift to achieving high return on investment versus pursuing low costs?	Rob Abent Aeronautics & Freight
	What are the rail freight and rail passenger needs in Michigan? How can state resources best resolve issues with current rail configuration?	Rob Abent Aeronautics & Freight
	What is the role of the private sector in the development of passenger facilities?	Sharon Edgar Passenger Transportation
	What are the economic benefits of transit? Consider benefits at state and local levels.	Sharon Edgar Passenger Transportation
	How can MDOT best configure its staff? Public/private partnerships should be considered. <i>(Identified as a long-term need.)</i>	Rob Abent Aeronautics & Freight
	What is the optimal amount of money MDOT should spend on technology? This includes technology applied to the transportation system (such as ITS and VII) as well improvements to the office environment. The agency should look at other states. <i>(Identified as a long-term need.)</i>	Leon Hank CAO
	How can state-federal-local partnerships be improved so that federal policy agendas can be delivered with less government-to-government oversight? This is of particular importance in transit, where both the federal government and state government pass funding through to local government. Too many resources are spent on government-government oversight at all levels. <i>(Identified as a long-term need.)</i>	Sharon Edgar Passenger Transportation
	What is the impact of land use policies on DOTs? <i>(Identified as a long-term need.)</i>	Myron Frierson Finance & Administration



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Environmental Accountability	What are the likely impacts of global warming and climate change in Michigan, and how can they be accommodated as they happen? What is transportation's environmental footprint, both for MDOT as an organization and throughout its programs? <i>(Identified as both a short-term and long-term need.)</i>	Susan Mortel Planning
	How do changes in practice impact the environment—when and how does one variable affect another? This is an ongoing concern.	Susan Mortel Planning
	How do winter maintenance operations (such as salt use and its application) impact the environment?	Randel Van Portfliet Superior Region
	How can MDOT apply “greening” goals and develop recommendations for the whole transportation system (rail, transit, etc.)?	Randel Van Portfliet Superior Region
	What is the overall environmental impact across all of MDOT's transportation modes?	Randel Van Portfliet Superior Region
	How can MDOT help develop industry and jobs in Michigan based on alternative fuel technologies (such as new bus designs)?	Sharon Edgar Passenger Transportation
	What alternative fuel research should MDOT conduct? This may involve working with the private sector, which could then develop alternatives for MDOT's fleet. <i>(Identified as a long-term need.)</i>	John Polasek Highway Development
	How does a changing energy policy affect transportation? This includes alternative fuels and methods, as well as the related issues on taxation, use, and application to transportation policy. <i>(Identified as a long-term need.)</i>	John Friend Highway Delivery



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Renewal and Sustainability	Is the state better off using or not using bonds for financing?	Leon Hank CAO
	What is most efficient size of a transportation agency? What activities should be included in the DOT? Should the department consider combining regional and local agencies regardless of jurisdictional boundaries?	Leon Hank CAO
	Considering return on investment for any transportation project, how does MDOT make tradeoff decisions for the greatest economic benefit?	Leon Hank CAO
	What new, low cost construction materials can researchers develop that are durable in Michigan's climate?	John Polasek Highway Development
	How can MDOT build maintainable structures and roadways that last longer? Possibilities include alternative materials that are lower in cost as well as alternative design and contracting approaches.	John Polasek Highway Development
	What new sustainable materials can be used for sustainable transportation? Through reusing materials and using longer-life materials, can MDOT accomplish a 0% waste stream?	Kirk Steudle Director
	What would be the effectiveness of a rumble strip program on non-freeways?	Larry Tibbits COO
	What are promising new materials and methods for construction and maintenance? Possibilities include rapid construction and new pavement materials to avoid dependency on fossil fuels.	Randel Van Portfliet Superior Region
	What are best practices for reviewing materially unbalanced bids?	Myron Frierson Finance & Administration
	What alternative design and contracting approaches will lower costs?	John Polasek Highway Development
	What are the most promising alternate paving materials?	Randel Van Portfliet Superior Region
	How can MDOT address system preservation?	Randel Van Portfliet Superior Region
	How can MDOT address system integration, which will become a bigger issue as public transportation system grows? Vehicle and equipment issues need to be considered.	Sharon Edgar Passenger Transportation